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YELLOWS
A SERIOUS DISEASE OF TOMATOES

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YELLOWS, A SERIOUS DISEASE OF TOMATOES

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ORIGIN OF THE NAME "YELLOWS"

"Tomato yellows" is merely a new name for that old plague of the West which has been more or less generally known as western yellow tomato blight. There are not many tomato growers west of the Rocky Mountains who are not familiar with the appearance of this disease: General yellowing of the plant, rigid upwardly rolling leaves, purple veins, and arrested growth with premature death. To be exact, it is not even a strictly new name. Plant pathologists of the Idaho (1904) and the Washington (1922 and 1924) State Agricultural Experiment Stations, where this disease has been studied for a greater number of years than at any other institution, have used the name "yellows" in their annual reports. The writer now recommends that this name be used in the future generally and exclusively in preference to and in place of any other synonyms, such as western blight, yellow blight, summer blight, or simply blight. There are several reasons, both scientific and practical, for adopting this name. The principal ones are stated in the following paragraphs.

REASONS FOR THE NEW NAME

A correct understanding of the nature of this disease has finally been reached, although as yet this knowledge is necessarily of a general character. It is now known that the malady is a virus disease, or, in other words, that its infective principle, whatever it may be, lives and multiplies in the juices of the plants. It is akin to curly top of sugar beets and may be carried from plant to plant by beet leaf hoppers. It is certain that if these insects feed first on the diseased beet and then on a healthy tomato, typical symptoms of what has been known as western yellow blight will result, if other conditions are favorable. In like manner this trouble may be transferred from other plants, both wild and cultivated, if they happen to be affected by the same virus. Such virus diseases, transmitted by leaf hoppers (distinct, however, from another large and well-known group of virus diseases known as mosaic and transmitted

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by aphids), fall into the general group of "yellows," represented by the well-known aster yellows. This fact alone should be sufficient to justify the name "tomato yellows" as a logical substitute for western yellow blight and other local names.

The new name is brief and simple. Any other known name consists of a noun and one or more adjectives, hence there has been a tendency to abbreviate it by leaving out one or all of these adjectives and to call this trouble simply "blight," which frequently led to confusion.

The name "tomato yellows" is clear and can not be misinterpreted. The adjective "western" in connection with this blight is misleading. It was attached to the name when the disease was known to exist only in the extreme northwestern part of the United States. Subsequent observations have definitely shown that it may occur as far east as Iowa. It may also be discovered in the future in other countries, and not necessarily in their western parts. Even after the word "western" is eliminated there remains in the old designation the very objectionable term "blight." There is more than one kind of blight on tomatoes, even in the State of California, and some additional ones in the East. Also, Fusarium wilt has been sometimes erroneously called blight. Often western growers who have bought "blight-proof" tomato seed from eastern concerns, as advertised, thinking of their own "yellow blight," have been greatly disappointed later simply because they had not understood that the blight-resistance claims of the seed houses referred to other blights rather than to "tomato yellows." Such trouble and confusion may readily be avoided by discarding the old chance names and adopting the logical and clear name "tomato yellows."

The new name is appropriately descriptive. The yellow discoloration of the affected plants is a general and invariable characteristic of all the fatal cases. While this important feature is incorporated also in the old name "yellow blight," the word "blight," as has just been shown, is confusing and should be eliminated. "Yellow" is the only valid word in the old names, and by changing it into a noun, "yellows," the recommended name "tomato yellows" is obtained.

Scientists favor the new name. As has been pointed out, this name has already been used in certain published reports. Plant pathologists of the West, at their recent gathering at Reno, Nev.,[1] approved the change. All persons concerned who favor simplicity, clearness, and economy should adopt the new name and use it in conversation and correspondence. By this means the name should get into general usage in a very short time and become established in business transactions among progressive growers, canners, and shippers.

THE PROBLEM OF CONTROL

By dealing with a definite tomato yellows, a virus disease related to curly top of sugar beets and transmitted by beet leaf hoppers, instead of with a mysterious western yellow blight, it may reasonably be expected that the work with control measures will be facili-

[1] Report of the eleventh annual meeting of the Pacific division of the American Phytopathological Society. Phytopathology 17: 745. 1927.

tated, particularly in two directions. In the first place because of the knowledge of the nature of the disease, the control work may be planned with a much clearer object in view and with much less haphazard experimentation. In the second place the accumulation of results will be greatly accelerated by means of artificial inoculations both in the greenhouse and outdoors, because it will not be necessary to depend on accidental and uncertain natural infection as heretofore.

Several State and Federal workers in different parts of the country are engaged in investigations on different phases of the problem of controlling tomato yellows. Some are endeavoring to develop resistant varieties, others are trying to discover some spray which will act as a repellent to the insects, and still others are working with different measures designed to protect the plant itself or to enable it to withstand the infection. Consistent results are being obtained by shading the tomato plants with cloth tents or by interplanting a tall and fast-growing crop such as sunflower. In the experiments of the last two years the percentage of yellows was reduced by this means to less than one-half of that in the adjoining control rows. It appears also that it may be advisable, at least in some parts of the country, to remove the shade, which might be objectionable from the viewpoint of production and picking, after the first part of the summer. Very little yellows, if any, developed in the bureau's experimental plots after the removal of shades about July 1. There are likewise very consistent indications as to the presence of resistance in certain varieties, such as some dwarf types, but the degree of natural resistance in these varieties is very slight and is of no commercial significance. Work is being carried on to develop new and more resistant varieties. It is hoped that the combined efforts of various investigators will eventually lead to the discovery of such effective preventive measures as will permit raising tomatoes even in those sections where tomato culture is now practically impossible on account of an extremely high percentage of yellows.

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